CLAIMS

1. An austenitic stainless steel having high stress corrosion crack resistance, characterized by containing, in percent by weight,

0.030% or less C,

0.1% or less Si,

2.0% or less Mn,

0.03% or less P,

0.002% or less S,

11 to 26% Ni,

17 to 30% Cr,

3% or less Mo, and

0.01% or less N,

the balance substantially being Fe and unavoidable impurities.

2. An austenitic stainless steel having high stress corrosion crack resistance, characterized by containing, in percent by weight,

0.030% or less C,

0.1% or less Si,

2.0% or less Mn,

0.03% or less P,

0.002% or less S,

11 to 26% Ni,

17 to 30% Cr,

3% or less Mo,

0.01% or less N,

0.001% or less Ca,

0.001% or less Mg, and

0.004% or less O,

the balance substantially being Fe and unavoidable impurities.

3. An austenitic stainless steel having high stress corrosion

crack resistance, characterized by containing, in percent by weight,

0.030% or less C,

0.1% or less Si,

2.0% or less Mn,

0.03% or less P,

0.002% or less S,

11 to 26% Ni,

17 to 30% Cr,

3% or less Mo,

0.01% or less N,

0.001% or less Ca,

0.001% or less Mg,

0.004% or less O, and

0.01% or less of any one of Zr, B and Hf,

the balance substantially being Fe and unavoidable impurities.

4. The austenitic stainless steel having high stress corrosion crack resistance according to any one of claims 1 to 3, characterized in that

(Cr equivalent) – (Ni equivalent) is in the range of –5% to +7%.

5. The austenitic stainless steel having high stress corrosion crack resistance according to any one of claims 1 to 4, characterized in that

Cr equivalent / Ni equivalent is 0.7 to 1.4.

6. The austenitic stainless steel having high stress corrosion crack resistance according to any one of claims 1 to 5, characterized in that

stacking fault energy (SFE) calculated by the following equation (1):

$$SFE(mJ/m^2) = 25.7+6.2\times Ni+410\times C-0.9\times Cr-77\times N-13\times Si-1.2\times Mn$$

... (1)

is 100 (mJ/m^2) or higher.

7. A manufacturing method for a stainless steel, characterized in that

a billet consisting of the austenitic stainless steel according to any one of claims 1 to 6 is subjected to solution heat treatment at a temperature of 1000 to 1150°C.

8. A manufacturing method for a stainless steel, characterized in that

a billet consisting of the austenitic stainless steel according to any one of claims 1 to 6 is subjected to solution heat treatment at a temperature of 1000 to 1150°C, thereafter being subjected to cold working of 10 to 30%, and is then subjected to intergranular carbide precipitation treatment at a temperature of 600 to 800°C for 1 to 50 hours.

9. A structure in a nuclear reactor, characterized by being formed of the austenitic stainless steel according to any one of claims 1 to 6.

10. A pipe for a nuclear reactor, characterized by being formed of the austenitic stainless steel according to any one of claims 1 to 6.

11. A structure in a nuclear reactor, characterized by being formed of the stainless steel obtained by the manufacturing method according to claim 7 or 8.

12. A pipe for a nuclear reactor, characterized by being formed of the stainless steel obtained by the manufacturing method according to claim 7 or 8.